

ml



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D212-664-101
Job Sheet 191406



Part No: D212-664-101

Part Name: Fwd Crosstube - High

Part Weight: 0 lbs

Job Created: 2/28/19

Due Date: 4/4/19

Type: Stock

Note: D212-664-141 REV E/ IIN-D212-664 REV.J IPP Rev:E 04.02.16 Reformat KJ/DS IPP Rev:F 06-03-29 Remove Coments on Pick List JLM IPP Rev:G 07-04-30 As per Rev C JLM IPP Rev:H 11.04.26 inspection strip ecr 11-549 EC verf by:DD IPP REV:I 14.05.27 AS PER ECN 14-570 DD VERF:JLM

Ship Via:

Job Qty: 1 ea

Status: New

Job Tracking No:

Created By: Marie Lajeunesse

Description:

Priority: Medium

Bill of Materials



DART Aerospace Ltd.
1270 Aberdeen Street
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CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S162486



Part: D212-664-101
Job No: 191406
Serial No/Batch: S162486
Revision: E/J
Inspector:
Exp Date:
Instructions: TC STC SH01-9 Issue 3, FAA STC SR01298NY 09/01/08, EASA ST

P.T.O.

Job Routing									
Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	4/4/19	4/4/19	0.00	0.00	Start Up Stores/Pkg-1		GP19-03-14.
110	Packaging	1 pcs	4/4/19	4/4/19	0.00	0.00	Packaging1-3		GP19-03-19
120	CNC Bend Crosstubes	1 pcs	4/4/19	4/4/19	3.11	2.22	CNC Bend Crosstube		GP19-03-19
130	QC	1 pcs	4/4/19	4/4/19	0.00	0.00	QC15		MAR 19 2019 /DD
140	Crosstubes	1 pcs	4/4/19	4/4/19	0.00	0.67	Crosstubes-1		GP19-03-25
150	HandFXtube	1 pcs	4/4/19	4/4/19	0.00	0.98	HandFinish5		GP19-03-25
160	QC	1 pcs	4/4/19	4/4/19	0.00	0.00	QC7-1		MAR 27 2019 68
165	QC	1 pcs	4/4/19	4/4/19	0.00	0.00	QC5		MAR 27 2019 68
170	Outsource	1 pcs	4/4/19	4/4/19			SKY002-VC P/O:043007		MAR 28 2019 9-89
180	Packaging	1 pcs	4/4/19	4/4/19	0.00	0.00	Packaging2		MAR 29 2019 DAS
190	QC	1 pcs	4/4/19	4/4/19	0.00	0.00	QC5		APR 02 2019 68
200	SprayPaint	1 pcs	4/4/19	4/4/19	0.00	0.25	Spray Paint		APR 19-4-22 DAS
210	QC	1 pcs	4/4/19	4/4/19	0.00	0.00	QC14		APR 29 2019 58
220	Crosstubes	1 pcs	4/4/19	4/4/19	0.00	1.69	Crosstubes-1		RD 19-4-24 68
230	QC	1 pcs	4/4/19	4/4/19	0.00	0.00	QC5		APR 29 2019 58
240	Packaging	1 pcs	4/4/19	4/4/19	0.00	0.00	Packaging1-3		APR 30 2019 89
250	QC	1 pcs	4/4/19	4/4/19	0.00	0.00	QC4		QC4
260	Packaging	1 pcs	4/4/19	4/4/19	0.00	0.00	Packaging3-1		21
265	DC	1 pcs	4/4/19	4/4/19	0.00	0.00	DC		MAY 01 2019
270	QC21-FG	1 Ea	4/4/19	4/4/19	0.00	0.00	QC21		MAY 01 2019

Part Op 120 - Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

Descriptions: 140 - "1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549,using drill table DT8577, set-up towers in hole #7 as per QSI 10 2-Ream hole to finish size in tube as per Dwg D212-664-141using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes. 3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141 4-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141"

150 - ***IMMEDIATELY AFTER GRINDING***

170 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order

180 - Ensure copy of NDT results attached to work order.

190 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D212-664-141

200 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1-Prime inside & outside crosstube as per QSI 005 4.2 BATCH: 5143304 2- After painting remove masking and apply matte clear coat per QSI005 4.2 3- MASK UNDERSIDE OF CROSSTUBE AS SHONE ON DWG BEFORE PAINTING 4 -Paint Outside of Tube as per Dart QSI 005 4.2 clear 138875 Paint 5155827

210 - Then,Wrap in plastic bag to protect from scratches

220 - *****LAY DOWN CROSSTUBE ON TABLE AND PUT DT10302 PINS IN SADDLE HOLE FACING UP, USE HOLE IN TAPE MESURE TO PUT IN PINS FOR LOCATING CENTER OF CROSSTUBE. ***** 1- Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg 2- Install supports with Proseal 890 per D212-664-141 and QSI 015 A/R Proseal 890 Batch: 5146134 EXP: 19-10 PROSEAL CURE TIME 72 HOURS: Start: 19-4-24 Finish: 19-4-27 3- Install clamps with rubber cushion (ENSURE CLAMPS ARE INSTALL ON TOP SIDE OF CROSSTUBE) using DT9565 as per Dwg D212-664-141. ***Torque all clamps to 80-100 IN-LBS.***

230 - ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***

250 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

260 - Identify and pack for shipping as per PPP D212-664-101 Location : FG094

265 - Photocopy bluefile and create labels as per PPP D212-664-101 CHG006

DAS
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Job BOM				
Part / Item	Component Name	Quantity	Operation	Container
D212-864-101TRN	Crosstube Turning Detail	1 pcs (1 ea)	90-Start up Operation	5154653.
D2893-1	Support	2 pcs (2 ea)	220-Crosstubes	
D3595-063-450	Rubber Cushion 0.63" Wide X 4.50" Long	4 pcs (4 ea)	220-Crosstubes	
MS21920-25	Clamp	4 Ea (4 ea)	220-Crosstubes	
AN6-35A	Bolt	4 Ea (4 ea)	240-Packaging	5123681.
AN6-36A	Bolt	4 Ea (4 ea)	240-Packaging	51466700.
D3428-1	Placard	1 pcs (1 ea)	240-Packaging	5112841
MS21042L6	Nut	6 Ea (6 ea)	240-Packaging	5149182
NAS1149D0663J	Washer	18 Ea (18 ea)	240-Packaging	5135105

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D212-664-101TRN	1	4	0
220-Crosstubes	D2893-1	2 5157970	9	0
	D3595-063-450	4 5164855	70	0
	MS21920-25	4 5142130	155	0
	AN6-35A	4	83	0
240-Packaging	AN6-36A	4	52	0
	D3428-1	1	39	0
	MS21042L6	6	338	0
	NAS1149D0663J	18	870	0

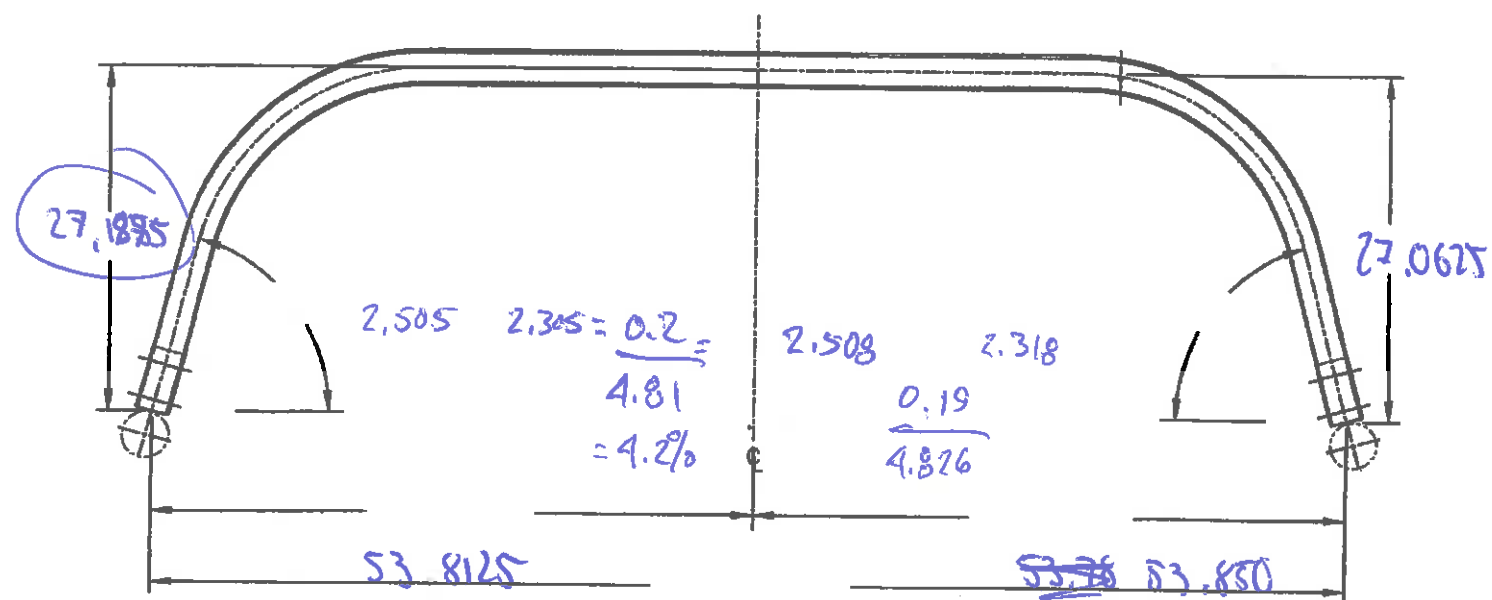
Part Specifications				
Specifications could not be found.				

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9517

DART AEROSPACE LTD	Work Order:	191406
Description: Crosstube High Fwd (205/212/412)	Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: E		Page 1 of 1

Required Dimension	Min	Max
Height	26.67	27.17
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7
Bending Passes	3	--
Crushing	--	7.2%



	Side A	Side B
Bending Passes		
Crushing	4.2%	3.9%
Comments		

QC15 Inspection	DAS
Date	68 MAR 14 2019 8-89

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	08.04.21	Dwg Rev updated	KJ/JM	
C	10.04.01	Dwg Rev updated	KJ	
D	12.04.16	Added bending, crushing dimensions	KJ	
E	14.07.28	Revised max crushing %	KJ	
F	16.01.15	Revised Height min/max dimensions	KJ	

Item	Qty -141	Qty -141B	Qty -141F	Part Number	Description
1	X			D212-664-141	CROSSTUBE ASSEMBLY (206212412 HIGH FWD)
2		X		D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3			X	D212-664-141F	CROSSTUBE ASSEMBLY (206212412 HIGH FWD) (ANODIZED)
4	1	1	1	D8005-128	CROSSTUBE
5	2	2	2	D2883-1	SUPPORT
6	4	4	4	D3585-083-450	RUBBER CUSHION
7	2	2	2	D8017-1	SUPPORT
8	4	4	4	MS21820-25	CLAMP (OR MS21820-28)
9	AR	AR	AR	PROSEAL 860 B-2	SEALANT, AMS-S-8602 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 128.51430.020
- 2) FINISH -141 & -141B: a) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
b) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
c) MASK UNDERSIDE OF CROSSTUBE AS SHOWN (ZN C6-2 / C6-3, HATCHED AREA)
d) PAINT OUTSIDE PER DART QSI 005 4.2
e) REMOVE MASKING AND APPLY MATTE CLEAR COAT
f) ANODIZE PER MIL-A-8625, TYPE II, CLASS 1.
g) ALCOINE (DO NOT ETCH) PER QSI 005 4.1.2
h) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
i) MASK UNDERSIDE OF CROSSTUBE AS SHOWN (ZN C6-2 / C6-3, HATCHED AREA)
j) PAINT OUTSIDE PER DART QSI 005 4.2
k) REMOVE MASKING AND APPLY MATTE CLEAR COAT
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141B-141F = 33.6 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 10) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 7.2% (BASED ON O.D.) IN LOWER HALF OF R35.5 BEND AND 8% (BASED ON O.D.) ON REMAINING TUBE.
- 12) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.

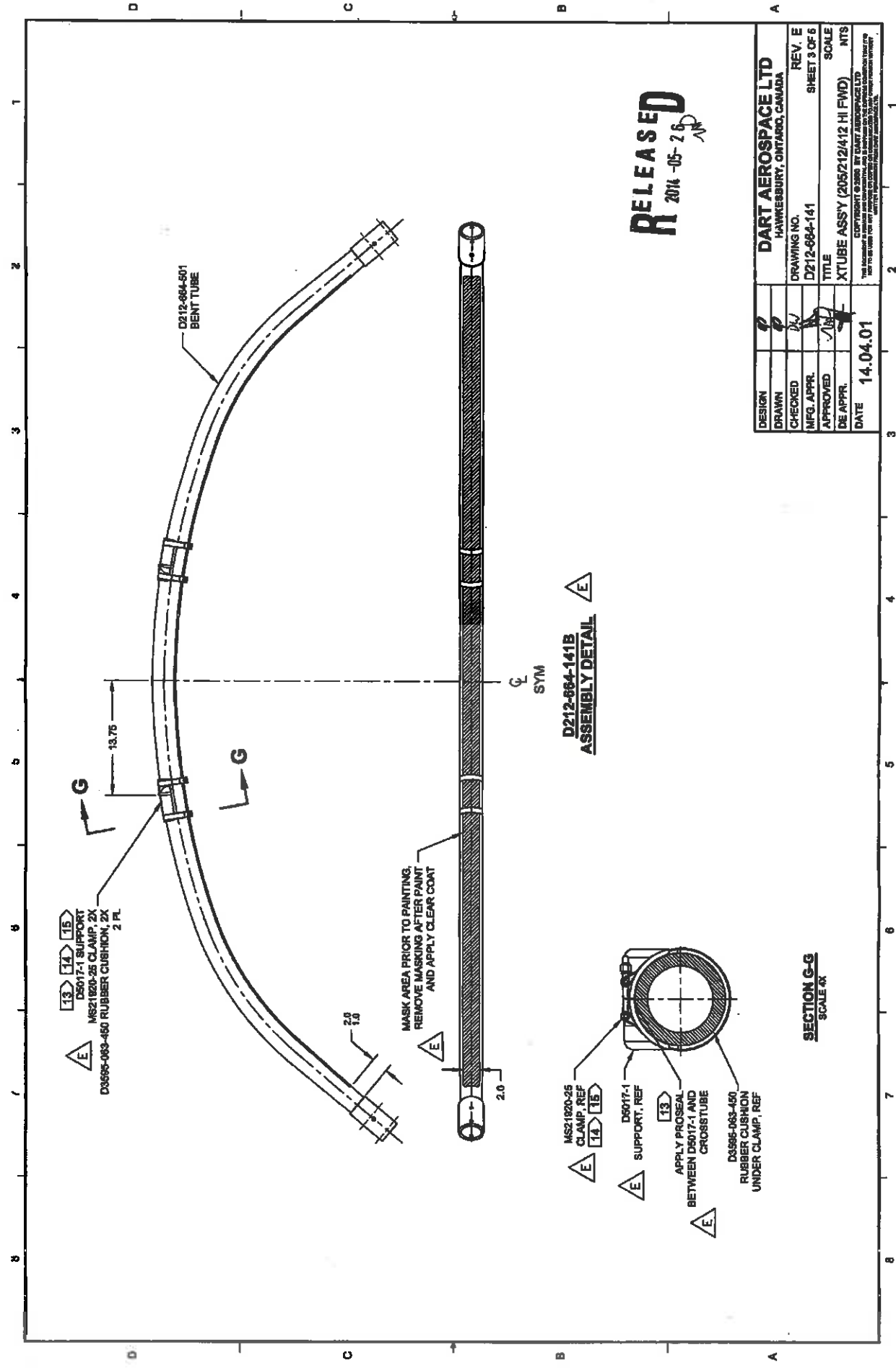
ASSEMBLY

- 13) TO INSTALL D2883-1 / D8017-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 860 CLASS B-2 (OR AMS-S-8602 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 14) INSTALL MS21820-25 CLAMPS (OR -26) WITH D3585-083-450 RUBBER CUSHIONS TO SECURE THE SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE ON TOP SIDE OF CROSSTUBE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 860 SEALANT HAS CURED FOR 72 HOURS.

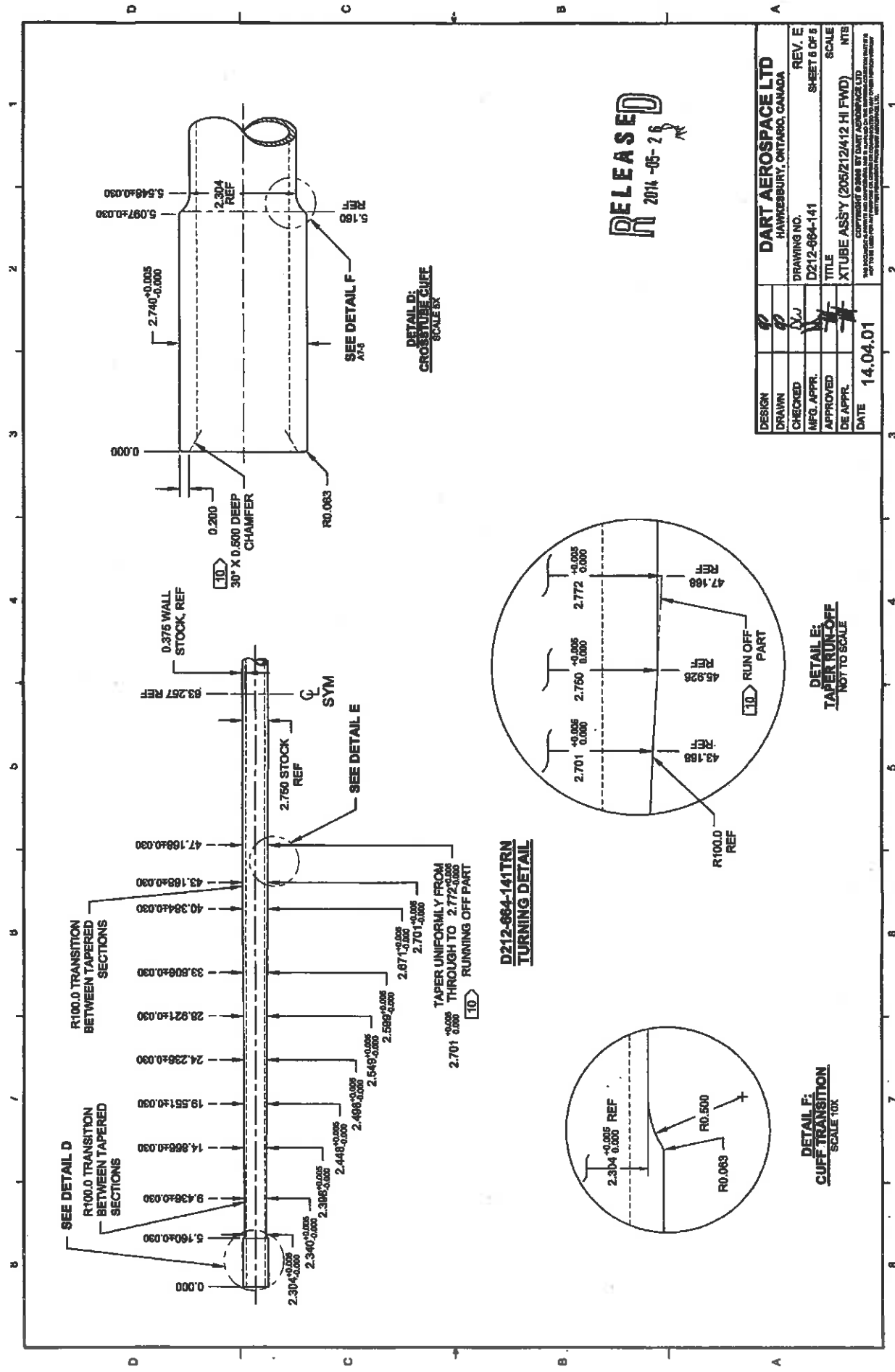
SHOP COPY
RETURN TO
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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 191406 nws
1902-28

RELEASED
2014-05-26
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E	ADD -141F. D8017-1 WAS D2883-1 (-141B). PROSEAL WAS MAGNABOND. NOTE 2: ADD INSPECTION WINDOW. NOTE 11: ALLOW 7.2% CRUSH. NOTE 15: ADD 72HR CURE AND RETORQUE FOR PROSEAL. ADD SHEET 3, CLAMPS REVERSED TO PREVENT CHIPPING (B7-2, B7-3). BEND HEIGHT TOL. NOW 0.25 WAS 0.13 (C1-3). INCORP. DED CLAMPS	CP	14.04.01
D	REWORK/REVIEW GENERAL NOTES/PART LIST: REORGANIZED VIEWS AND DIMENSIONS TO CURRENT STANDARDS; ADD -141B TO BULKY; REMOVED REF. X ADD TOLERANCES (ZN B4-1, C6-3, C6-3, A 86-3); RELOCATED FLAG 80 PER PAR 08-046 (ZN A8-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	08.03.30
C	REMOVE 481 ABRASION STRIP; ADD MAGNABOND 8388. CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATIBILITY WITH BRT/AA SHUTTLES	PH	06.02.04
A	NEW ISSUE	CP	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	14.04.01		
DART AEROSPACE LTD JANREDSBURT, ONTARIO, CANADA			
DRAWING NO. D212-664-141			
SHEET 1 OF 5			
TITLE XTUBE ASSY (206212412 HI FWD)			
SCALE NTS			
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RELEASED
2014-05-26



RELEASED
2014-05-26



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER
PO043007



Supplier: SKY002-VC Skyservice 6120 Midfield Road Mississauga ON L5P 1B1 Canada Phone: 905-678-5636 Fax: 905-678-5841	PO No: PO043007 PO Date: 3/28/19 Due Date: 3/29/19 Purchase Order Revision: Revision Date: Ship-To Contact: Phone: MAR 28 2019
Attention: Jenne, Heather	Via: Ground Pynt Terms: Net 30 Freight Terms: Special Comments:
Ship To: 1270 Aberdeen Street Hawkesbury ON K6A 1K7 Canada Phone: 613-632-5200	

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	184180	D4464-041	Fuel Tank Assembly : Various STC's ISSUE P/O LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2	Firmed	-	3/29/19	1 pcs	0 pcs	1 pcs	\$198.33333/pcs	\$198.33
2	190172	D212-664-201	Aft Crosstube - High : TC STC SH01-9 Issue 3, FAA STC SR01298NY 09/01/08, EASA STC EASA.IM.R.S.01304 07/03/06, DGAC MEXICO STC IA-318/2015 15/06/17 ***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.*** Issue P/O: LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2	Firmed	-	3/29/19	1 pcs	0 pcs	1 pcs	\$198.33333/pcs	\$198.33
	190173			Firmed	-	3/29/19	1 pcs	0 pcs	1 pcs	\$198.33333/pcs	\$198.33
Sub Total:							2	0	2		\$396.67



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Canada

Tel (613) 632-5200

PURCHASE ORDER
PO043007



Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
3	191403	D212-664-101	Fwd Crosstube - High : TC STC SH01-9 Issue 3, FAA STC SR01298NY 09/01/08, EASA STC EASA.IM.R.S.01304 07/03/06, DGAC MEXICO STC IA-316/2015 15/06/17 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	Firmed -		3/29/19	1 pcs	0 pcs	1 pcs	\$198.3333/pcs	\$198.33
	191405			Firmed -		3/29/19	1 pcs	0 pcs	1 pcs	\$198.3333/pcs	\$198.33
	191406			Firmed -		3/29/19	1 pcs	0 pcs	1 pcs	\$198.3333/pcs	\$198.33
Sub Total:							3	0	3		\$595.00
Grand Total:											\$1,190.00

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 3/28/19 3:19 PM dart.lavoie.chantal

 Work Order Traveler Sky Service F.B.O. Inc.			
10105 Ryan Avenue, Dorval, Quebec, H9P 1A2		TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385	
WO #: MWO39775	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO043007 ✓
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT ON:

- ✓ 1 FUEL TANK ASSY , P/N# D4464-041 , J/S# 184180 ✓
- ✓ 2 AFT CROSSTUBES , P/N# D212-664-201 , J/S# 190172 , 190173 ✓
- ✓ 3 FWD CROSSTUBES , P/N# D212-664-101 , J/S# 191403 , 191405 , 191406 ✓

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417M-16						MAR 28 2019	 
NO CRACK OR LEAK FOUND							
PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , DEV. MPO11715 , UV LIGHT M-20142							
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.		
Signature:	ACA/SCA Stamp 	Date: MAR 28 2019
Name: RAFIK MELIKIAN		

ml
19 July 2019

Entered: _____ Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE



Route update only ☐

NCR No. 19-7341

Job: 191406 Part No. D212-664-101		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐		DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☒ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐	
Date: APR 22 2019	Sequence #: _____	QTY Affected: 1		NRB (QSI042) 19-07-17	
Description Work Order Deviation		Disposition			
- PART PAINTED WITHOUT "VIEWING WINDOW".		- STRIP AND RE-PAINT AS PER QSI 5. Primer 5143304 Clear 5151467 Paint 5155827			
DAS 68 9-89		QC / QA Coordinator DAS 68 9-89 19-07-17			
Root Cause Operator ☒ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Other/Details: _____ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☒ Part Lost/Missing ☐ Misread ☐			